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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/923,497	08/06/2001	Arthur J. Carlson	13144US01	2287

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EXAMINER

CHEN, ALAN S

ART UNIT	PAPER NUMBER
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2182

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DATE MAILED: 08/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/923,497

Applicant(s)

CARLSON, ARTHUR J.

Examiner

Alan S Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☒ Claim(s) 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08/06/2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 17 is objected to because of the following informalities: the word "citerion" should be "criterion". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 11 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claims 11 and 12 recites the limitation "the modem". There is insufficient antecedent basis for this limitation in the claim. Examiner assumes the modem refers to the communication system.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-17 are rejected under 35 U.S.C. 102(b) as being anticipated by No. 5,461,640 to Gatherer.
7. In reference to Claim 1, Gatherer discloses a modem (Fig. 3, and Column 2, lines 1-2) comprising:

Memory adapted to store a plurality of PRBS generator definition (Fig. 3. elements 10a and 21b and Column 3, lines 35-45 and Column 7, lines 40-53); and

Circuitry adapted to determine an operating environment of the modem (e.g., the channel, Fig. 3, elements 10, 18, 21 and 22) and to select one of the plurality of PRBS generator definitions based on the operating environment (Fig. 3, element 21b and Column 7, lines 54-65).

8. In reference to Claim 2, Gatherer discloses the modem according to Claim 1, wherein the circuitry includes the memory, which is located in a DSP chip (Column 7, lines 40-53).

9. In reference to Claim 3, Gatherer discloses the modem according to Claim 1, wherein the circuitry comprises measuring circuitry (the modem equalizes the demodulator to the channel, Column 7, lines 40-53).

10. In reference to Claim 4, Gatherer discloses the modem according to Claim 3, wherein the measuring circuitry comprises a processor, which is located in a DSP chip (Column 7, lines 40-53).

11. In reference to Claim 5, Gatherer discloses the modem according to Claim 1, wherein the operating environment of the modem comprises at least on channel condition (Column 7, lines 40-53). Gatherer describes channel equalization needs to overcome various channel conditions, one condition being intersymbol interference (Column 1, lines 45-56).

12. In reference to Claim 6, Gatherer discloses the modem according to Claim 1, wherein the operating environment of the modem comprises a pre-selected criterion (Column 7, lines 54-65). Gatherer describes using the PRBS generators to generate a predetermined training sequence used to equalize the channel.

13. In reference to Claim 7, Gatherer discloses a communication system (Fig. 3) comprising:

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A communication node (Fig. 3, element 21) having circuitry adapted to determine an operating environment (Fig. 3, element 18) of the communication node; and

A management information node (Fig. 3, element 21) adapted to control the communication node based on the operating environment and a plurality of stored PRBS generator definitions (Fig. 3, element 21b and Column 7, lines 54-65).

14. In reference to Claim 8, Gatherer discloses the system according to Claim 7, wherein the circuitry includes the memory, which is located in a DSP chip (Column 7, lines 40-53).

15. In reference to Claim 9, Gatherer discloses the system according to Claim 7, wherein the circuitry comprises measuring circuitry (the modem equalizes the demodulator to the channel, Column 7, lines 40-53).

16. In reference to Claim 10, Gatherer discloses the system according to Claim 9, wherein the measuring circuitry comprises a processor, which is located in a DSP chip (Column 7, lines 40-53).

17. In reference to Claim 11, Gatherer discloses the system according to Claim 7, wherein the operating environment of the system comprises at least one channel condition (Column 7, lines 40-53). Gatherer describes channel equalization needs to overcome various channel conditions, one condition being intersymbol interference (Column 1, lines 45-56).

18. In reference to Claim 12, Gatherer discloses the modem according to Claim 7, wherein the operating environment of the system comprises a pre-selected criterion (Column 7, lines 54-65). Gatherer describes using the PRBS generators to generate a predetermined training sequence used to equalize the channel.

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19. In reference to Claim 13, Gatherer discloses the system of Claim 7, wherein said plurality of PRBS generator definitions (Fig. 3, element 21b) are stored on said management information node (Fig. 3, element 21).

20. In reference to Claim 14, Gatherer discloses the system of claim 7, further comprising memory communicating with at least the management information node. The management information node utilizes the processor on the DSP chip, which accesses memory on the DSP chip whether it is cache, RAM or ROM (Column 7, lines 40-53 and attached datasheet for DSP chip, TMS320C30).

21. In reference to Claim 15, Gatherer discloses the system of Claim 14, wherein said plurality of PRBS generator definitions are stored in said memory, all of which are implemented on a DSP chip (Column 7, lines 40-53).

22. In reference to Claim 16, Gatherer discloses the system of Claim 7, wherein said management information node comprises a MIB. The MIB controls the modem operation and makes conditional decisions based on observations made during training. This is function of the Matrix Generator, Eigenvector Generator, Equalizer Controller, and the Equalizer (Fig. 3, elements 21c, 21e, 21f, and 22). See Column 8, lines 2-31.

23. In reference to Claim 17, Gatherer discloses the system of Claim 12, wherein the pre-selected criterion comprises a user selection. The PRBS generator generates a predetermined training sequence determined by the user (Column 7, lines 54-56).

***Claim Rejections - 35 USC § 103***

24. Claims 18-20 are rejected under 35 USC 103(a) as being unpatentable over Gatherer. Gatherer discloses a method of communication (Fig. 3) comprising: determining an operating

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environment (Fig. 3, element 18) of a communication node (Fig. 3, element 18); and selecting, based on the measured environment, a PRBS generator definition from a plurality of stored PRBS generator definitions (Fig. 3, element 21b and Column 7, lines 54-65). Furthermore, Gatherer discloses determining the operating environment comprising: measuring at least one channel condition (Column 7, lines 40-53 and Column 1, lines 45-56) and obtaining a pre-selected criterion (Column 7, lines 54-65).

Gatherer does not disclose expressly selecting a singular PRBS generator from a plurality of stored PRBS generators.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to select one PRBS generator from a plurality of stored PRBS generators. Since the generators described by Gatherer produce a plurality of PRBS generator definitions, it is obvious one can have a plurality of generators that each contain a singular or plurality of definitions, and based on the chosen definition, the corresponding PRBS generator that produced the chosen definition is thereupon selected.

The suggestion/motivation for doing so would have been to partition where the PRBS definitions are stored.

Therefore, it would have been obvious to distribute PRBS definitions among a plurality of PRBS generators obtain the invention as specified in Claims 18-20.

25. Claim 21 rejected under 35 USC 103(a) as being unpatentable over Gatherer.

Gatherer discloses a method of communication (Fig. 3) comprising: determining an operating environment (Fig. 3, element 18) of a communication node (Fig. 3, element 18); and selecting, based on the measured environment a PRBS generator definition from a plurality of stored PRBS

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generator definitions (Fig. 3, element 21b and Column 7, lines 54-65) and determining the operating environment based on a pre-selected criterion (Column 7, lines 54-65).

Gatherer does not disclose expressly the operating environment as containing a number of carriers that is received by the communication node nor the criterion that the PRBS generator will be selected based on the number of carriers compared to a threshold.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to define the number of carriers within a channel received by the communication node as a possible PRBS generator definition and set the criterion of selecting the PRBS generator (the PRBS generator definitions are stored on a plurality of PRBS generators, reasoning given in number 24 of this Office Action) based on the number of carriers compared to a threshold number of carriers.

The suggestion/motivation for doing so would have been a simple method to optimize the equalizer to use less processing time and computer memory (Column 3, lines 29-35). The detection of the number of carriers e.g., based on signal strength, would be far less computationally intensive than say the criterion of determining the type of modulation of the signals.

Therefore, it would have been obvious to set the criterion for selecting the PRBS generator based on number of carriers to obtain the invention as specified in Claim 21.

### ***Conclusion***

26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.



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The following patents are cited to further show the state of the art with respect to adjusting buffer utilization ratios:

U.S. Pat. No. 5,283,831 to Cook et al.

U.S. Pat. No. 5,283,831 to Chow et al.

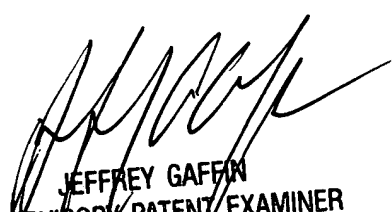
U.S. Pat. No. 5,283,831 to Zink et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan S Chen whose telephone number is 703-605-0708. The examiner can normally be reached on M-F 8:30am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey A Gaffin can be reached on 703-308-3301. The fax phone numbers for the organization where this application or proceeding is assigned are 703-746-7239 for regular communications and 703-746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-3900.

asc  
August 7, 2003

  
JEFFREY GAFFIN  
SUPERVISORY PATENT EXAMINER  
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